The entire work is good, both in design and treatment, and adapted to give, to lay readers as well as medical, just notions concerning a subject most generally and most grossly misunderstood.

B. L. R.

Art. XXX.—*On Mycetoma, or the Fungus Disease of India.* By H. Vandyke Carter, M.D. Lond., H. M. Indian Army. Quarto pp. xii., 118. London: J. & A. Churchill, 1874. (With eleven coloured plates.)

Mycetoma, or the *Fungus Disease of India*, is the name employed by Dr. Carter for the curious affection which has at various times been described under the names of Madura foot, Fungus-foot, Podelkoma, Godfrey and Eyre's tubercular disease, etc., and which, as shown by the author in the very handsome volume now under consideration, "results from the growth within the textures of the human body, of a simply organized vegetable parasite," the *Chionyphe Carteri*, as it is designated by Rev. Mr. Berkeley, who has identified the plant by its botanical characters.

Dr. Carter, who is already known to our readers by his excellent little book on the microscopic structure of urinary calculi, which it was our pleasant duty to notice in the number of this Journal for April, 1874 (p. 491), has divided his present work into five sections, which treat respectively of the local and general characters of mycetoma, its pathology, its prognosis and treatment, and its natural history. A copious bibliography is given in an appendix, and full descriptions of the plates, and an index, terminate the volume.

Two varieties of mycetoma are described by the author, one the *Melanoid*, characterized by the presence of fungus particles of a *black* or dark-brown colour, and usually of *hard* consistence (hence called *Sclerotia*), and the other, or *Ochroid*, variety, containing *pale* particles, pink, brown, or yellowish in colour, and called *Malacotia*, from their *softness*. The disease, though most common in the foot, has also been observed in the hand, and might, doubtless, occur in any part of the body into which the peculiar spores or germs of the chionyphe should happen to penetrate. Close analogies are pointed out by Dr. Carter, between mycetoma and the disease produced by the presence of the *Filaria medinensis*, or Guinea-worm, and it is clearly shown that though superficially resembling the perforating ulcer, or *mal perforant du pied* of French writers, it has really nothing in common with that affection. When fully developed, mycetoma produces enormous swelling of the part, the fungus growing and burrowing both in the soft tissues and in the bones, and giving rise to abscesses which leave sinuses discharging the black or pale particles peculiar to the disease. The only natural termination of mycetoma is in death from gradual exhaustion, no instance being known of spontaneous recovery; the treatment consists in excision, if the disease is recognized at an early stage, or at a later period in amputation, which under these circumstances appears to be attended with very little risk. In removing the limb care must be taken to apply the knife at such a point as to insure the complete ablation of the fungus, as, should any particle remain, recurrence of the disease would be probable.

From the author's account of the *mode of growth of the entophytes*, we extract the following:—

"On the most cursory examination of the peculiar characters of this disease, it becomes obvious that one must start with the assumption that 'spores' or 'germs' are, in some way, introduced beneath the skin of the affected member. As to the *mode* in which this is possible, it is sufficient to repeat that there are natural openings in the integument, particularly abundant in the sole and palm (where probably the disease oftenest begins), through which such reproductive elements, in the form of *Conidia*, *Amœboid cells*, or *Bacteria* might readily enter. . . . But it is also obvious that . . . any small artificial orifice, as puncture or abrasion, would serve for passage equally well; and, in fact, not uncommonly patients attribute this disease to the prick of an Acacia-thorn, etc. The soil of both field and lane in India, so invariably swarms with decaying vegetable matter, and this at certain seasons in a moist condition, that one can only wonder that the bare-footed native does not far oftener become affected with the fungus disease. In general terms it may be said, that the spores or germs of *Chionyphe*, however introduced, become developed amid the tissues, away from light, but plentifully supplied with oxygen, nitrogen, and other food; and also favoured by moisture and a constant high temperature. . . . Commencing at some points upon the surface, the entophytic growth proceeds towards the deeper parts, and the whole mass of the foot may so be traversed; and as well adjoining parts of the leg itself: then, sooner or later, the growth tends towards the free surface of the skin, and by irritation of the deeper layer of the cutis, vesicles are caused, such as arise by the corresponding approach of the Guinea-worm on its way outwards; their rupture produces, and leaves, the peculiar apertures above described, and here escape the matured products of plant growth. The soft, elevated swellings of the skin, or abscesses, so-called, may be regarded, perhaps, as but exaggerated vesicles; and they have the same relation to the deeper-seated processes. These latter are attended with some irritation of the tissues, which leads, in those of the integument, to firm œdema and even hypertrophy, which may be considerable; the muscles in the course of the branching, fruit-bearing tunnels are necessarily destroyed, and they are also wasted by disuse: the ligaments and tendons longer persist, these and the fibrous aponeuroses, probably to some extent influence the direction of growth, but this does not appear of the bones, which frequently suffer to a large extent, and sometimes, I have thought, by preference: in all the last-named tissues, the attendant vascular irritation is slight, and not to be compared with that due to ordinary foreign bodies, or the more heterogeneous morbid products. . . . It is certain that a period of incubation must intervene, between inoculation and return to the surface, of the spreading growths; . . . that there is, besides, a seasonal period of exacerbation in growth, may be surmised, but this is not yet certainly known. The parent-fungus (*Chionyphe Carteri*) grows only at one season, . . . and, as I have above said, the habit may not be altogether lost in its pathological phases."

It would be unjust to conclude this notice without calling attention to the beautiful lithographic plates which fitly illustrate Dr. Carter's splendid volume. These are from drawings made by the author, and exhibit in a most graphic manner the appearances of Mycetoma, both externally and on section of the amputated limb, the mode of invasion of the fungus growth, the minute structure of the fungus particles in either variety of the disease, and the spontaneous and artificial development of the parent plant. The whole work is of great value, and reflects much credit upon both the ability and the industry of its author.

J. A., JR.